Effect of intervenous magnesium sulfate on decreasing opioid requirement after surgery of the lower limb fracture by spinal anesthesia

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Abstract

Background: Magnesium is the calcium natural physiological antagonist; it also antagonizes N-Methyl-D-aspartate receptors, therefore, providing antinociceptive properties. The reason for effective role of treatment with magnesium on decreasing opioid usage, less dissatisfaction, and good sleep quality is proposed theoretically yet. This study aimed to evaluate the effect of magnesium sulfate on decreasing opioids requirement after surgery of the lower limbs fracture by spinal anesthesia. Methods: A total of 60 patients aged from 45 to 75 years with the lower limb fractures (femur and hip) candidate for surgery by spinal anesthesia. In a randomized double-blind method, patients were divided into two groups as Magnesium Group (M) and Control Group (C). Group M received a bolus of 5 mg/kg magnesium sulfate plus (250 CC) normal saline and Group C received (250 CC) normal saline in the same condition. Results: Pain score and the physical dissatisfaction were reduced at 12, 24, and 48 h after surgery in Group M as compared with Group C (P = 0.000). Total opioid requirement at the end of 48 h and at the first 24 h after surgery were reduced in Group M as compared with Group C (P = 0.001). The endurance of spinal block was increased in Group M as compared with Group C (P = 0.000). Conclusions: A low dose of magnesium sulfate reduced the pain score, opioid requirement, and physical dissatisfaction while increased endurance of spinal block.

Keywords

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